

REMARKS

Claims 1-15 are pending in this application. The Examiner rejected Claim 1-15 under 35 U.S.C. 103(a). Independent Claims 1 and 11 have been amended in the foregoing amendment.

Stone, Wickham, Tachikawa and Amersfoort

Do Not Show or Suggest the Invention of Claims 1 and 11

The Examiner rejected Claim 1 under 35 U.S.C. 103(a) as unpatentable over U.S. Patent No. 5,982,515 to Stone et al. ("*Stone*") in view of U.S. Patent No. 6,708,003 to Wickham et al. ("*Wickham*"), and as unpatentable over U.S. Patent No. 5,414,548 to Tachikawa et al. ("*Tachikawa*") in view of *Wickham*; and rejected Claim 11 under 35 U.S.C. 103(a) as unpatentable over *Tachikawa* in view of *Wickham* and U.S. Patent No. 5,748,811 to Amersfoort et al. ("*Amersfoort*"). Applicants traverse these rejections for the reasons discussed below.

Claim 1

The optical signal processing device of amended Claim 1 requires that the optical signal processing device is a purely optical device for optically processing the optical signals multiplexed on the time axis that operates entirely in an optical region, without converting the input optical signals into electric signals for the purpose of signal processing. See page 15, lines 16-28 and page 16, lines 2-15 of the present specification.

In contrast, *Stone* describes an optical time shifter and routing system which is a device for processing optical signals on a wavelength axis. *Stone* fails to show or suggest a purely optical device for optically processing the optical signals multiplexed on the time axis, as required by amended Claim 1. The Examiner contended that reference numbers 276 and 278 at Fig. 15 of *Stone* describe an optical gate configured to gate the optical signals outputted from the optical combiner or entered into the optical delay waveguide array. However, the reference numbers 276 and 278 of *Stone* are not optical gates but switchable gratings for selecting delay lines. See Column 14, lines 7-13 and Column 12, lines 10-13 of

Stone. Thus, *Stone* fails to show or suggest an optical gate configured to gate the optical signals outputted from the optical combiner or entered into the optical delay waveguide array, on the time axis, as required by amended Claim 1.

Tachikawa describes an arrayed waveguide grating multiplexer/demultiplexer (AWGMD) with loop-back optical paths, which is an optical device for multiplexing/demultiplexing the wavelength division multiplexed optical signals in Figs. 7 and 9. However, *Tachikawa* also fails to show or suggest a purely optical device for optically processing the optical signals multiplexed on the time axis, as required by amended Claim 1.

On the other hand, *Wickham* describes an optical transmission system using amplitude modulators, for the specific purpose of spectral shaping benefits including apodizing the spectral array profile or accommodating intensity profile distortions caused by atmospheric propagation. See Column 7, lines 23-27 of *Wickham*. *Wickham* fails to show or suggest any possible use of such amplitude modulators in the optical time shifter and routing system of *Stone* or the optical multiplexer/demultiplexer of *Tachikawa*.

Accordingly, amended Claim 1 would not have been obvious to one of ordinary skill from *Stone* and *Wickham*, or from *Tachikawa* and *Wickham*, at the time Applicants made the claimed invention. Thus, amended Claim 1 should be allowed.

Claim 11

Similarly to Claim 1, the optical signal processing device of amended Claim 11 requires that the optical signal processing device is a purely optical device for optically processing the optical signals multiplexed on the time axis that operates entirely in an optical region, without converting the input optical signals into electric signals for the purpose of signal processing.

As described above in relation to Claim 1, *Tachikawa* fails to show or suggest a purely optical device for optically processing the optical signals multiplexed on the time axis, and also a plurality of optical gates configured to gate the optical signals respectively

provided on the optical delay waveguides and configured to gate the optical signals entered into the optical delay waveguide array, on the time axis, as required by amended Claim 11.

On the other hand, *Wickham* describes an optical transmission system using amplitude modulators, for the specific purpose of spectral shaping benefits including apodizing the spectral array profile or accommodating intensity profile distortions caused by atmospheric propagation. See Column 7, lines 23-27 of *Wickham*. *Wickham* fails to show or suggest any possible use of such amplitude modulators in the optical multiplexer/demultiplexer of *Tachikawa*.

Amersfoort describes an optical filter or router, which uses an optical cross-connect switch. However, *Amersfoort* does not show or suggest any possible use of such an optical cross-connect switch in the optical multiplexer/demultiplexer of *Tachikawa*.

Accordingly, amended Claim 11 would not have been obvious to one of ordinary skill from *Tachikawa*, *Wickham*, and *Amersfoort* at the time Applicants made the claimed invention. Thus, amended Claim 11 should also be allowed.

Claims 2-10 and 12-15

Claims 2-10 and 12-15 depend from independent Claims 1 and 11. The remarks made above in support of the patentability of the independent claims are equally applicable to distinguish the dependent claims from the cited references. Thus, Claims 2-10 and 12-15 should also be allowed.

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CONCLUSION

The foregoing is submitted as a complete response to the Office Action identified above. This application should now be in condition for allowance, and the Applicants solicit a notice to that effect. If there are any issues that can be addressed via telephone, the Examiner is asked to contact the undersigned at 404.685.6799.

Respectfully submitted,

A handwritten signature in cursive script, reading "Brenda O. Holmes".

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